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RRERA, D.W.		
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BIG, J.G.		
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ESTER, A.W.		
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RX, G.E.		
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Reviewed for Addressee
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COLORADO DEPARTMENT OF HEALTH
Dedicated to protecting and improving the health and
environment of the people of Colorado

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EG&G
ROCKY FLATS PLANT
CORRESPONDENCE CONTROL



Roy Romer
Governor

Patricia A. Nolan, MD,
Executive Director

September 22, 1993

Mr. Richard J. Schassburger
U. S. Department of Energy
Rocky Flats Office, Bldg 116
P.O. Box 928
Golden, Colorado 80402-0928

RE: Technical Memorandum (TM) 5 - Exposure Scenarios, OU 2, January, 1993

Dear Mr. Schassburger,

The Colorado Department of Health, Hazardous Materials and Waste Management Division (the Division), has reviewed DOE's response to Division comments on the above referenced document submitted by DOE. Our comments on this document were originally submitted to DOE on 3/12/93 and DOE submitted responses to our comments on 5/24/93. The Division has the following remaining concerns with TM 5:

1. The Division agrees with EPA that DOE's comments regarding the ecological preserve are speculative, misleading, and largely irrelevant. DOE must evaluate all options, not just the ones that they believe most likely.
2. The Division agrees with EPA that the conclusion made by DOE that "no risks are posed by LHSU waters" is premature.
3. The Division continues to contend that sensitive populations like children (age 0 to 6 years) should be assessed. This recommendation is supported by both EPA (EPA Region 10 guidance on dermal exposure; EPA's Exposure Factors Handbook; EPA's Combustor Emission guidance 1990), the ICRP (1975) and DOE (OU1 and OU3 risk assessments) precedents, by Division policy on RCRA as well as all other CERCLA sites in Colorado, recent NAS recommendations (Pesticides in the Diets of Infants and Children, NAS, 1993), and good risk assessment practice. Specific guidance is available in various EPA publications as discussed previously.
4. The Division still contends that the most recent information should be used in any baseline risk assessment, regardless of the effort required - eg., census information.
5. Regarding comment CDH S-21, does "comment noted" mean that subsurface soil exposures and dermal contact with sediment will be included in the list of exposure pathways?
6. The presence of organics in background samples indicates that the background site may not be appropriate. Regardless, all organic chemicals should be considered to be anthropogenic, and all COCs should be evaluated for every "applicable exposure pathway".

ADMIN RECORD

7. Regarding comment CDH S-22 (4.5.1), the Division is not convinced by DOE's argument that construction workers' exposure to VOCs in subsurface soils would be subject to a high dilution from construction activities. The points brought up in our comment were not addressed.

8. Regarding comment CDH S-25 (4.5.2.3), DOE's definition of a construction worker's job as only encompassing construction of a subsurface basement is too narrow. Construction workers also build roads, bridges, install underground utilities, etc., all of which conceivably could happen at Rocky Flats in the future. Therefore, dermal contact with surface water is reasonable in certain instances.

9. CDH does not agree that construction workers have an "insignificant" amount of contact with soils, regardless of the "frequency of contact". Direct contact with soils would be expected to be more significant for construction workers, who could be in close contact with soils during excavations, than for office workers. We believe that intake via dermal contact and ingestion could be comparable, especially for organic chemicals.

10. The Division does not agree with DOE's response to comment CDH S-30 (5.1.1). Given the inconclusive information on the relative contribution of outdoor soil to indoor dust, DOE's insistence on a FI value of 0.5 seems arbitrary. An attempt should be made to gather site-specific information at Rocky Flats, otherwise EPA guidance should be followed.

11. As EPA stated, related to comment CDH S-31, RfCs or slope factors are often comparable to delivered doses, not absorbed doses or doses deposited in the lung. It is incumbent on DOE to correctly compare absorbed doses with those RfCs or slope factors that are based on absorbed dose, and administered doses with those RfCs or slope factors that are based on administered dose (RAGS p. A-3). Therefore, DOE cannot apply an absorption factor (regardless of its value) across the board, but can only do so on a chemical-specific basis.

12. If, related to comment CDH S-32, DOE can prove that a value of 0.5 fraction ingested (FI) is appropriate for the ingestion of indoor dust at Rocky Flats by collecting site-specific information, then the Division could approve its use. However, until that site-specific information is forthcoming, using 0.5 for fraction ingested will not be approved because of the apparent importance of site-specific factors on this parameter.

13. The Division is not convinced that the use of a Fraction Contacted (FC) value of 0.5 is appropriate for a construction worker. It was not clear from DOE's responses whether this value had been changed to 1.0 or not. It also is not clear whether DOE plans to retain the 0.125 fraction contacted value for the future onsite office worker or not. This needs to be clarified.

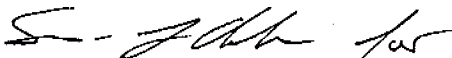
14. The Division and EPA both contend that the $2,910 \text{ cm}^2/\text{day}$ for dermal contact with soil for both the residential and occupational receptors is incorrect. An assumption of long sleeved shirts and long pants are appropriate for occupational receptors. Thus, the $2,910 \text{ cm}^2/\text{day}$ value may be appropriate for occupational receptors. However, this value is not reasonable or typical for adult residential receptors especially in warm seasons, and should be adjusted upwards.

15. Both the Division and EPA still think that a soil adherence factor value of $0.5 \text{ mg}/\text{cm}^2$ is not in accordance with EPA dermal exposure guidance. As EPA

mentioned in its comment, a central tendency value is 0.2 mg/cm², and an upper value is 1.0 mg/cm². The range of values reported by the EPA's Dermal Exposure Assessment guidance is 0.2-1.5 mg/cm² per event.

The Division believes that these issues are very important for the risk assessment efforts in OU 2. We apologize for our tardy response to these items. However, in our 3/12/93 letter, we requested that DOE prepare an updated version of this TM. As this has not occurred to our knowledge, we recommend that DOE either wait until the Exposure Assessment portion of the risk assessment template is finalized before preparing a new version of this TM or meet with appropriate regulatory agency staff to resolve the remaining issues. If you have any questions regarding these matters, please call Joe Schieffelin of my staff at 692-3356.

Sincerely,



Gary W. Baughman, Chief
Facilities Section
Hazardous Waste Control Program

cc: Scott Grace, DOE
~~Annette Primrose,~~ EG&G
Martin Hestmark, EPA
Jackie Berardini, CDH-OE